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Figure 1A-C

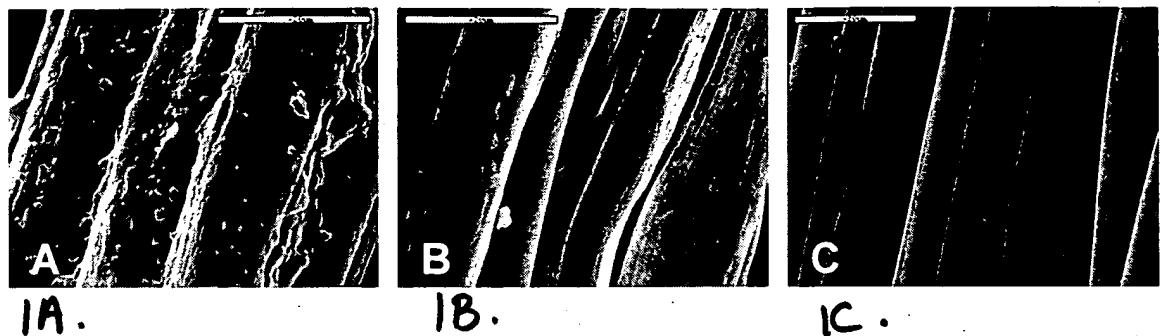


Figure 1D

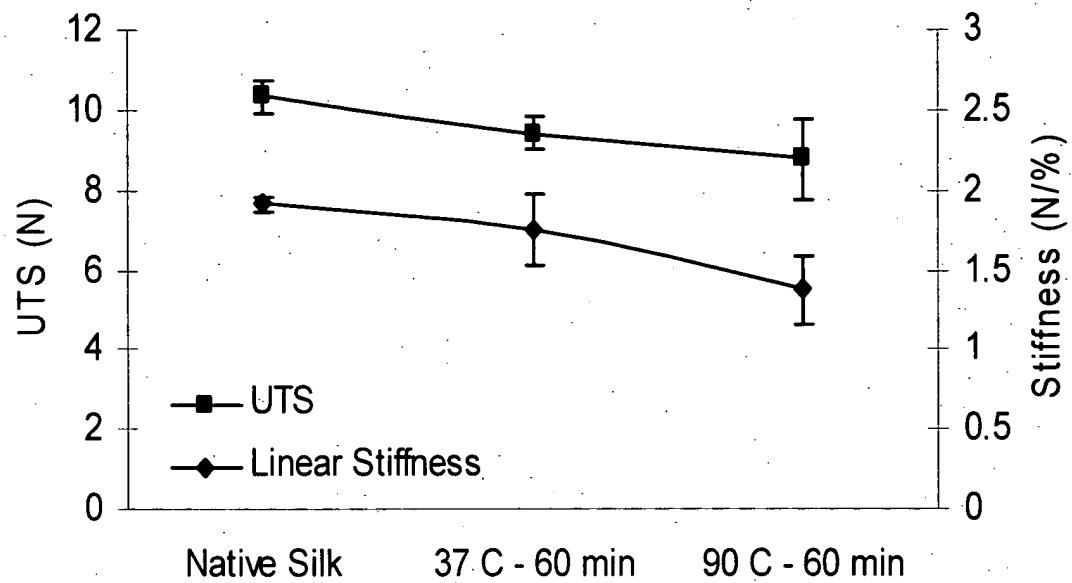
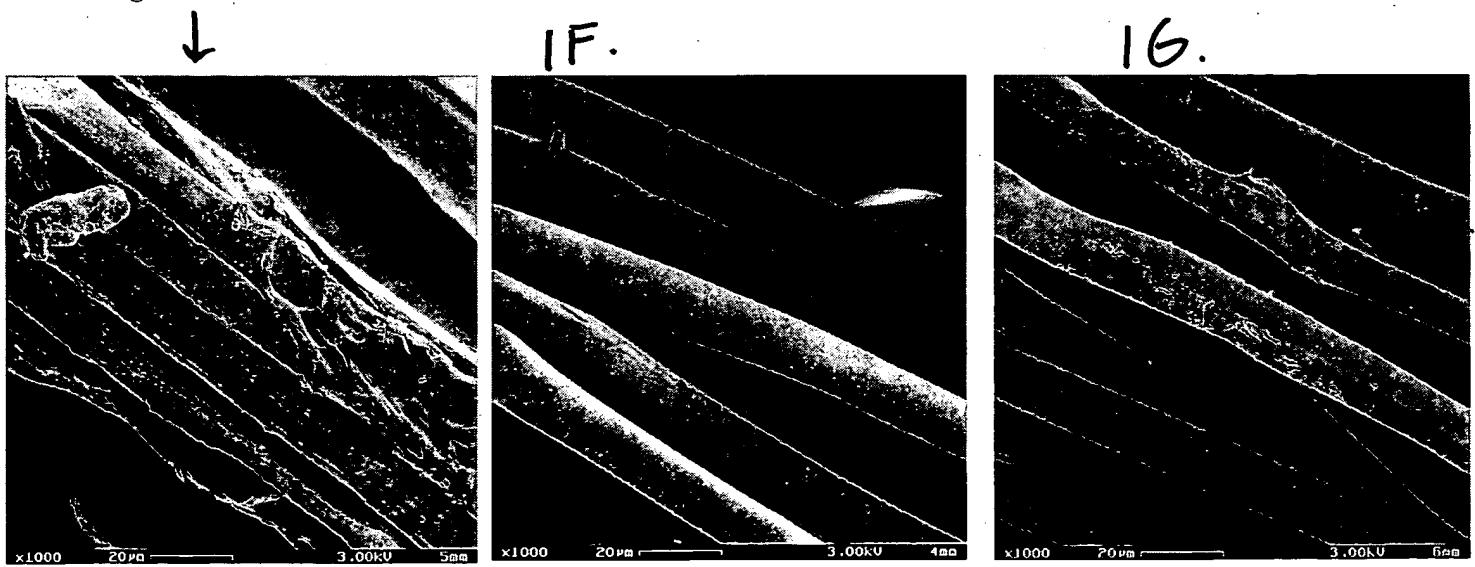


Figure 1E



Raw Silk

1x Washed Silk

2x Washed Silk

Figure 2A

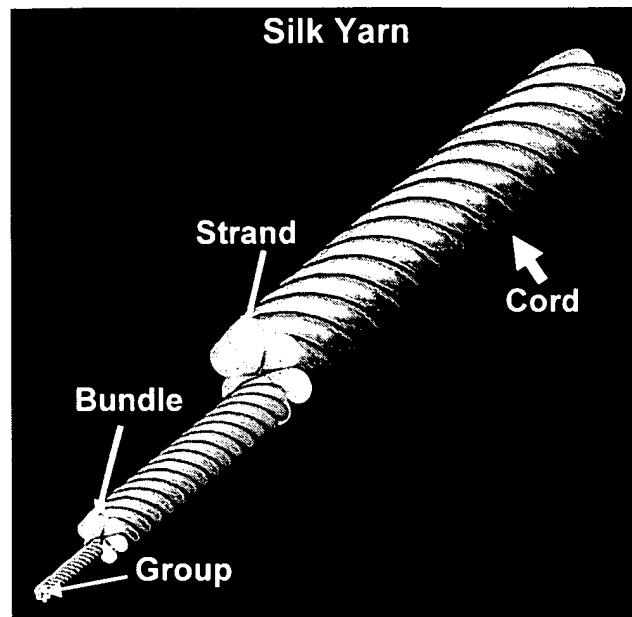


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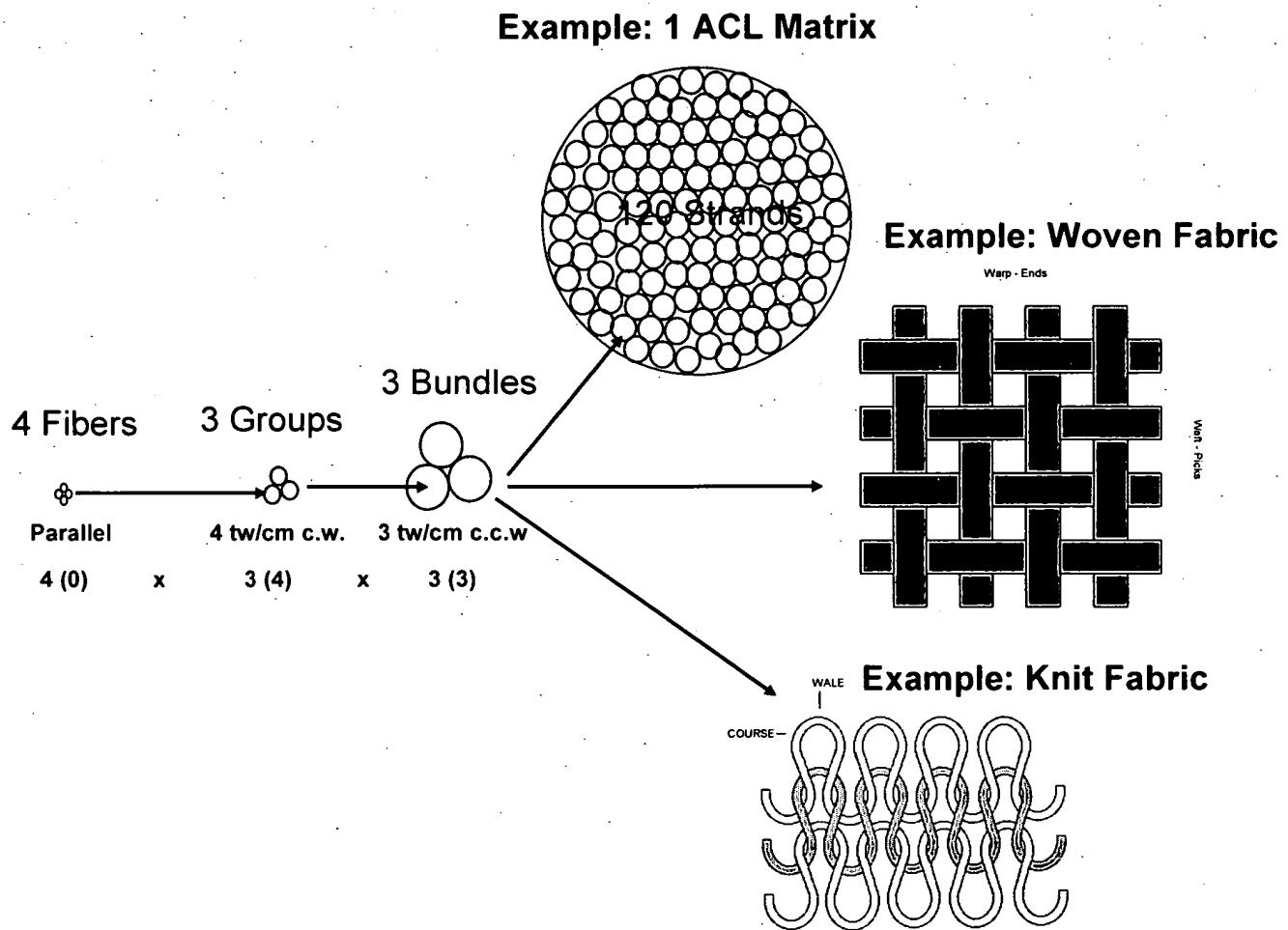


Figure 2C

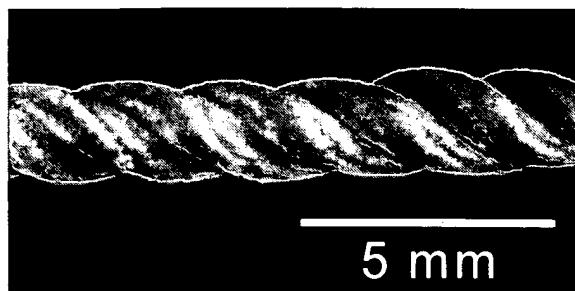


Figure 2D

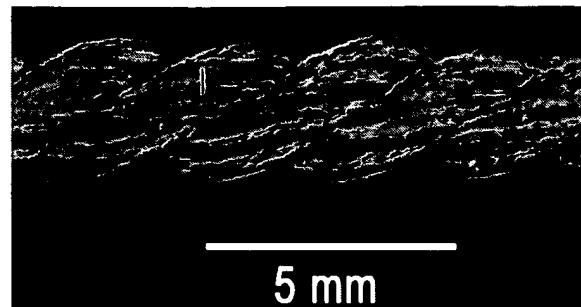
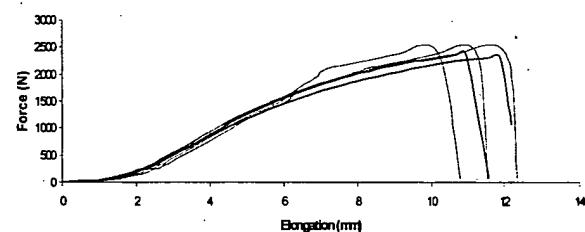


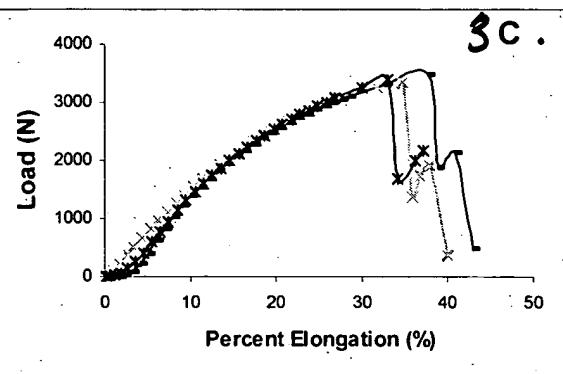
Figure 3

3A.

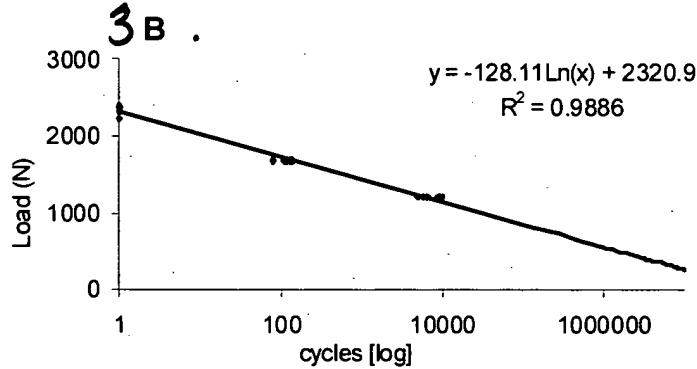
AQL Six-Cord Matrix



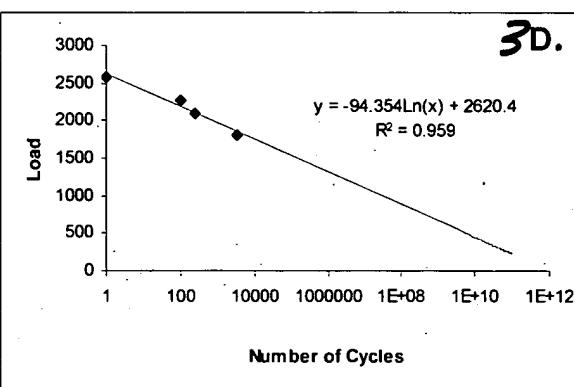
3C.



3B.



3D.



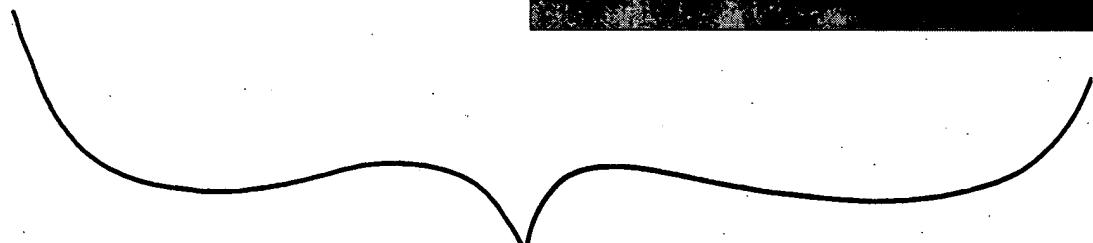
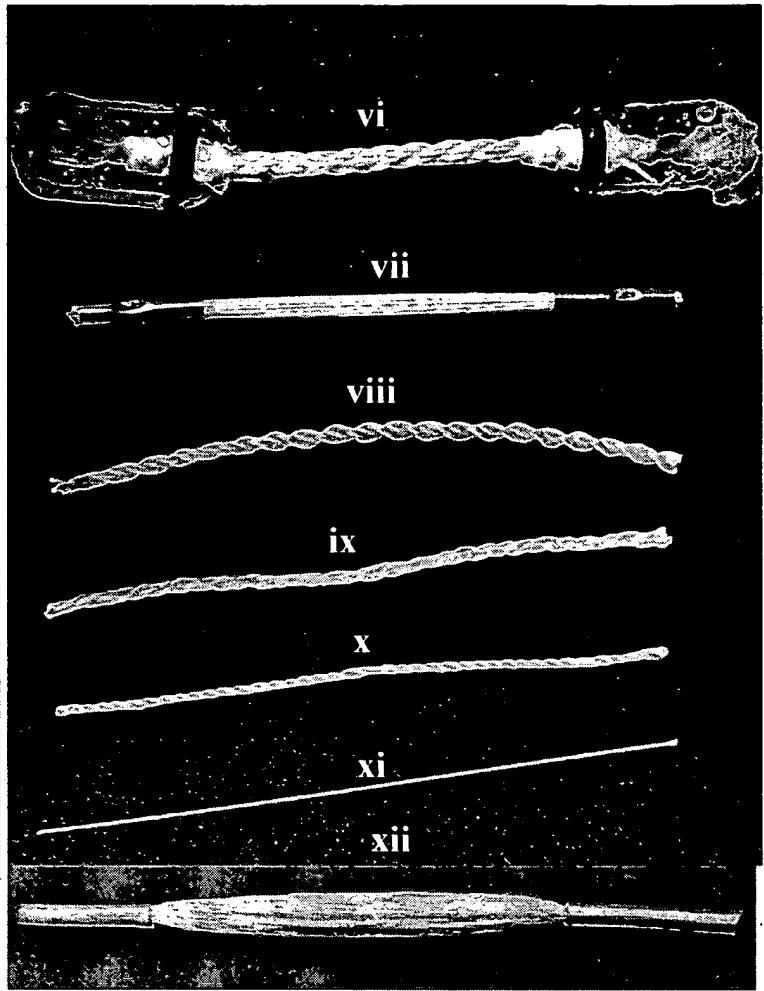
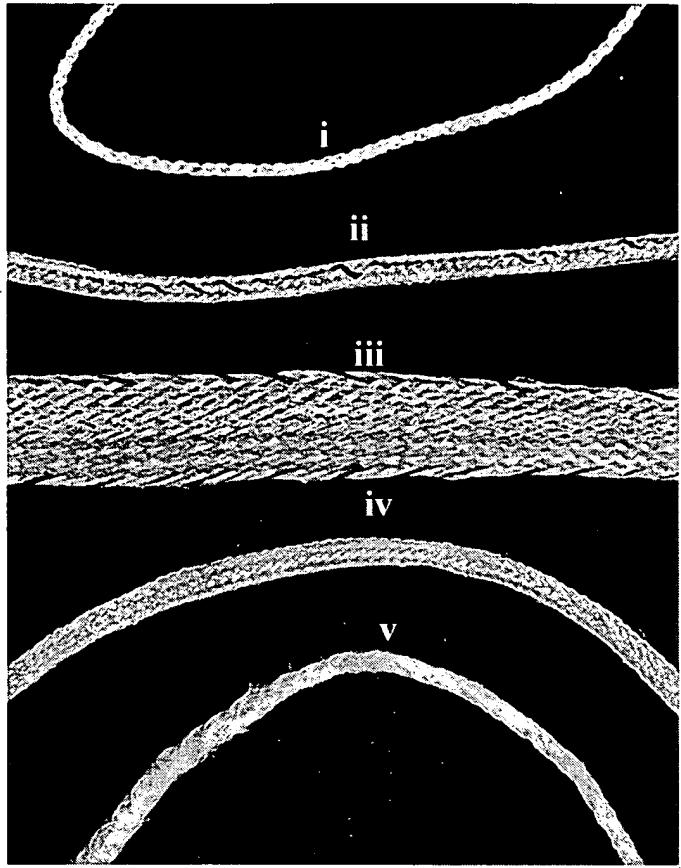


Fig. 4A

Fig.
4B

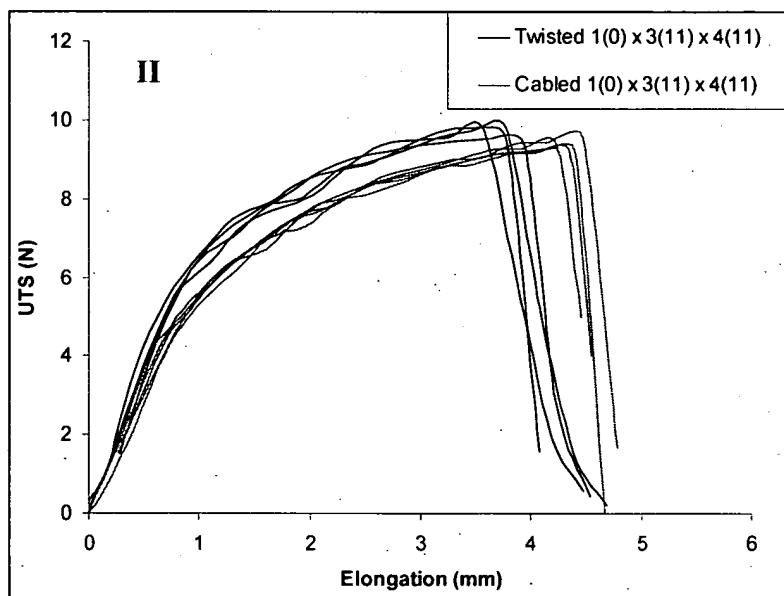
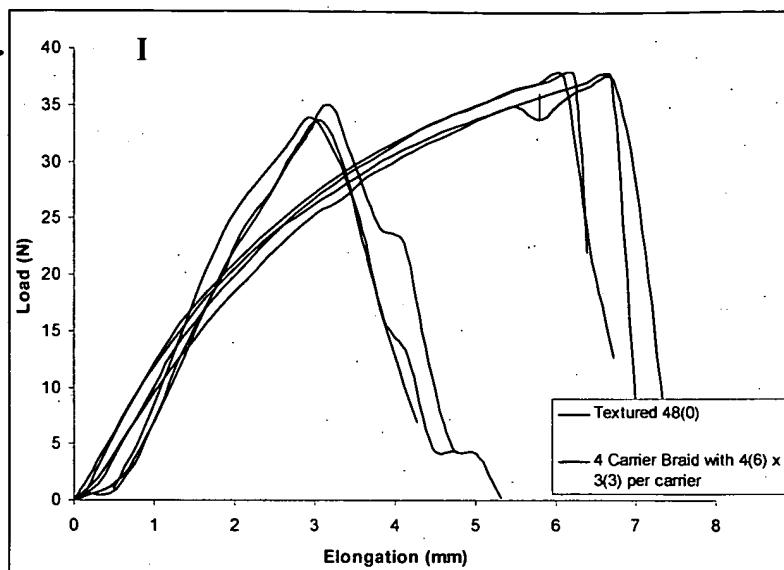


Fig. 4C

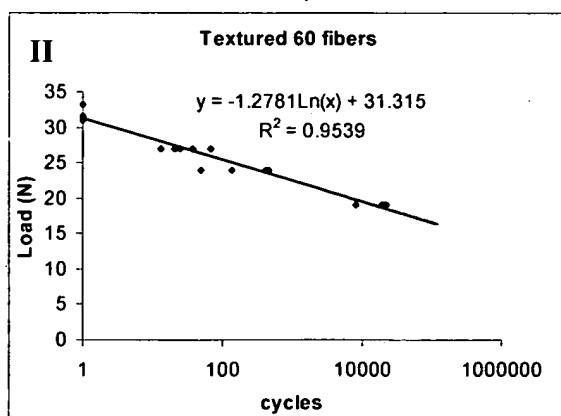
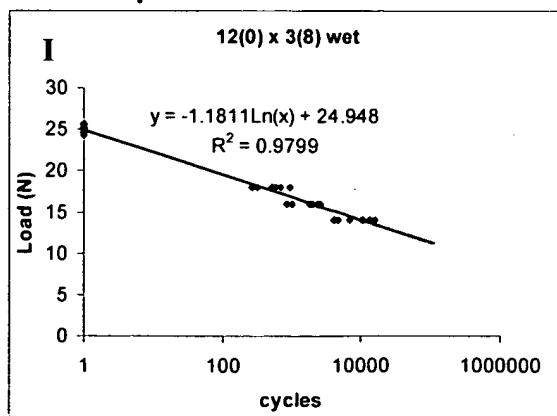


Figure 5A (all done on 12(0) x 3(8), extracted and wet)

Strain Rate (mm/min)	UTS (N)	stdev (N)	Stiffness (N/mm)	stdev (N/mm)
3050	24.9	0.60	3.70	1.04
2700	25.0	0.86	3.47	0.40
900	24.3	0.50	3.02	0.12
36	22.5	0.70	2.74	0.08

Figure 5B

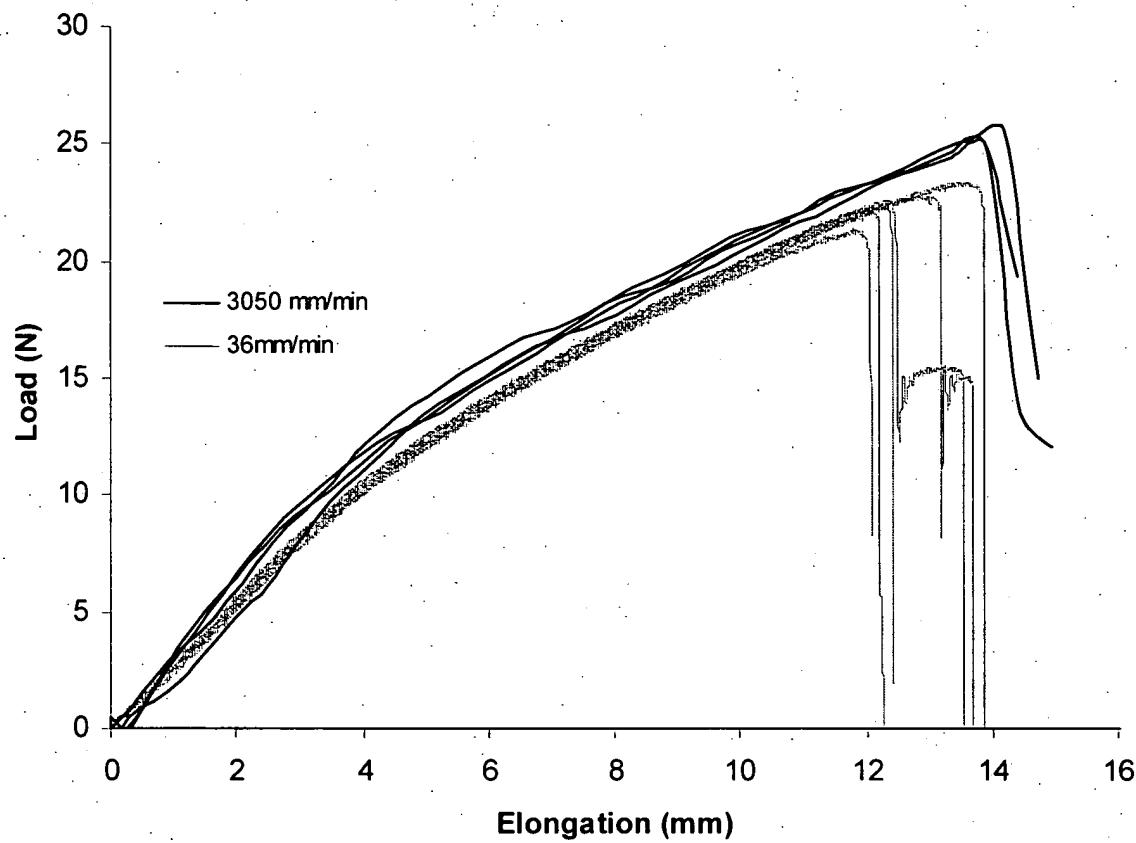


Figure 6A

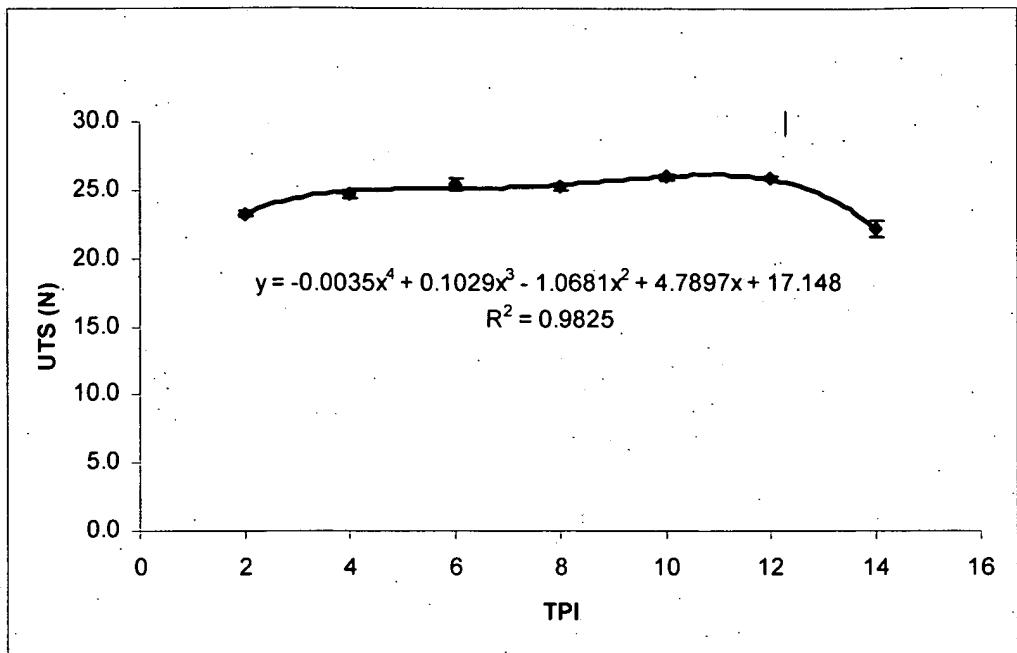


Figure 6B

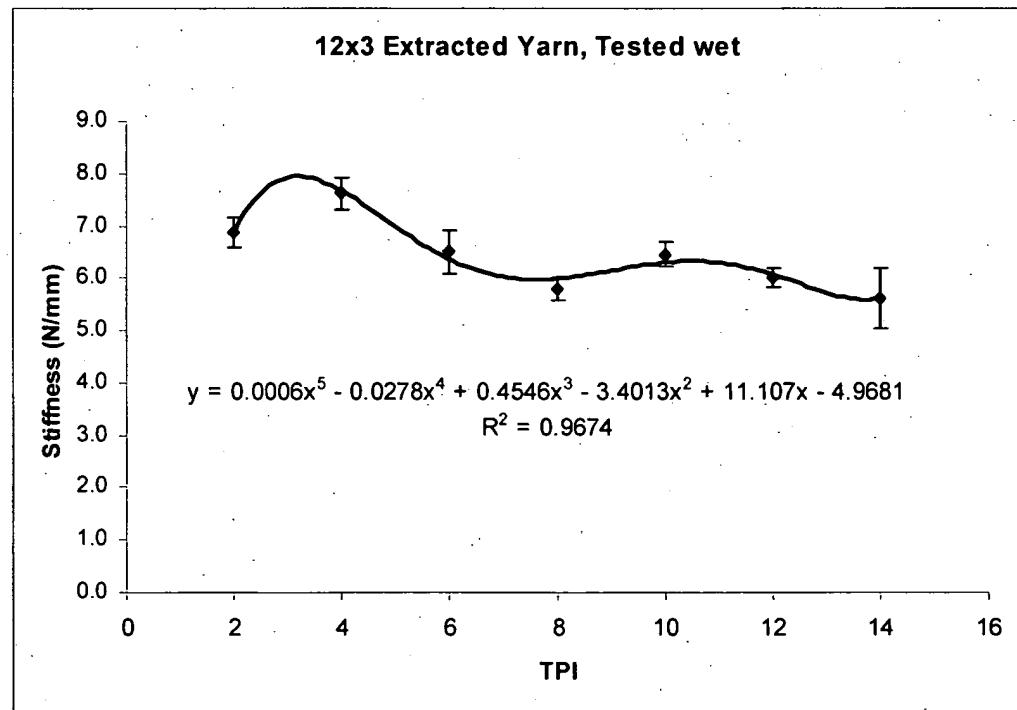
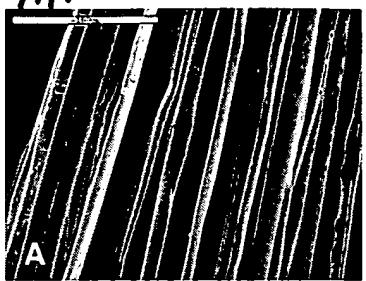


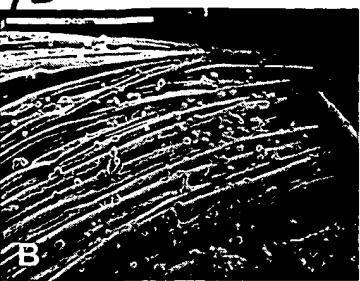
Figure 7

7A.

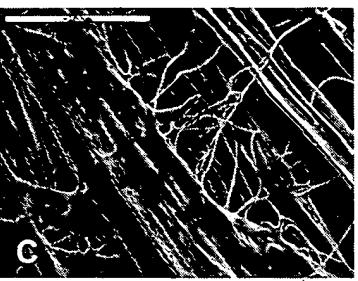


A

7B.



B



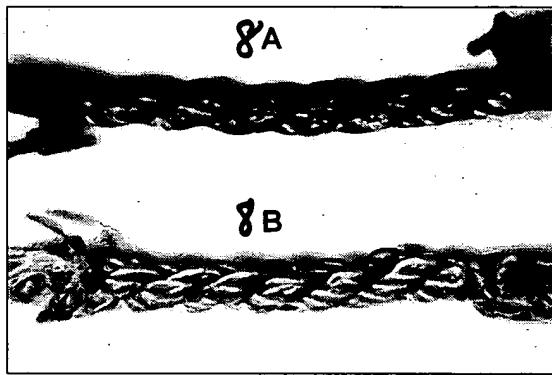
C



D

7C.

Figure 8

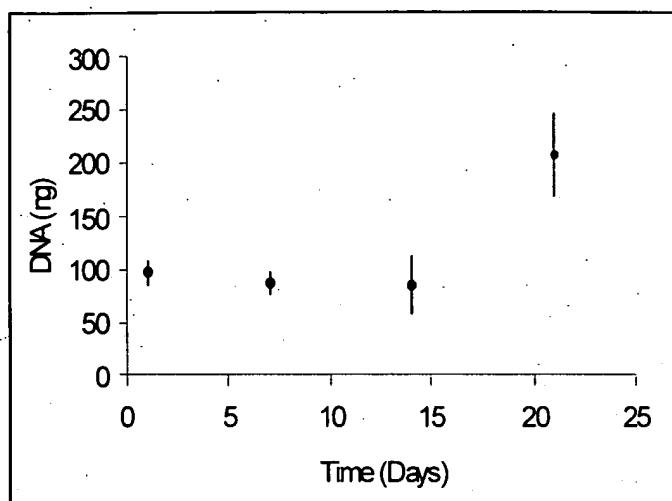


8A

8B

Figure 9

9A.



9B.

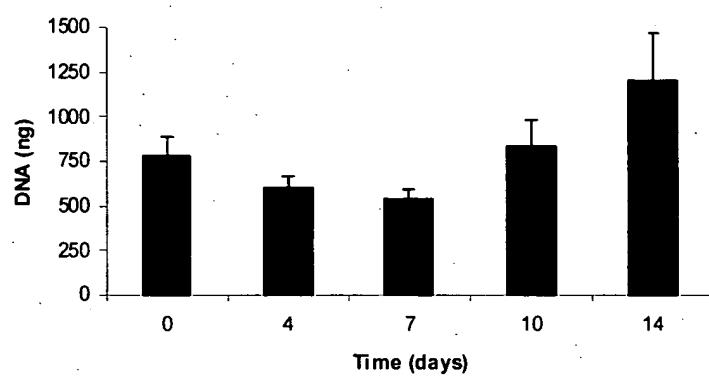


Figure 10

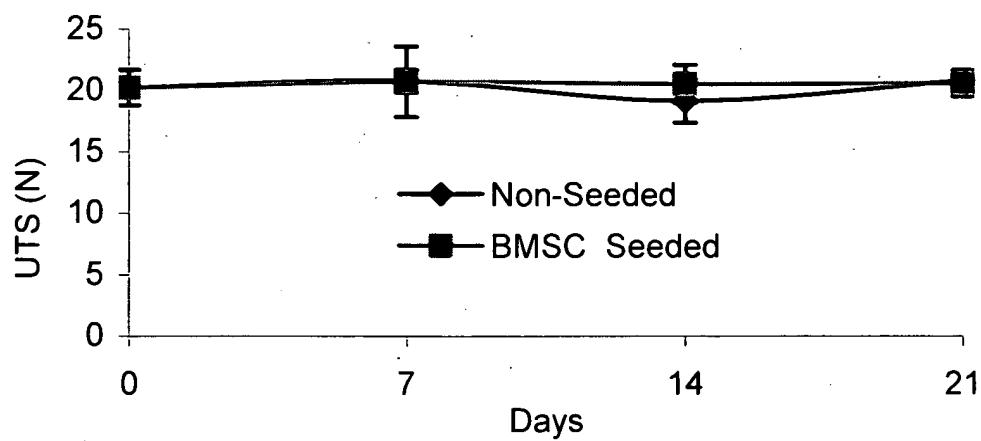


Figure 11A

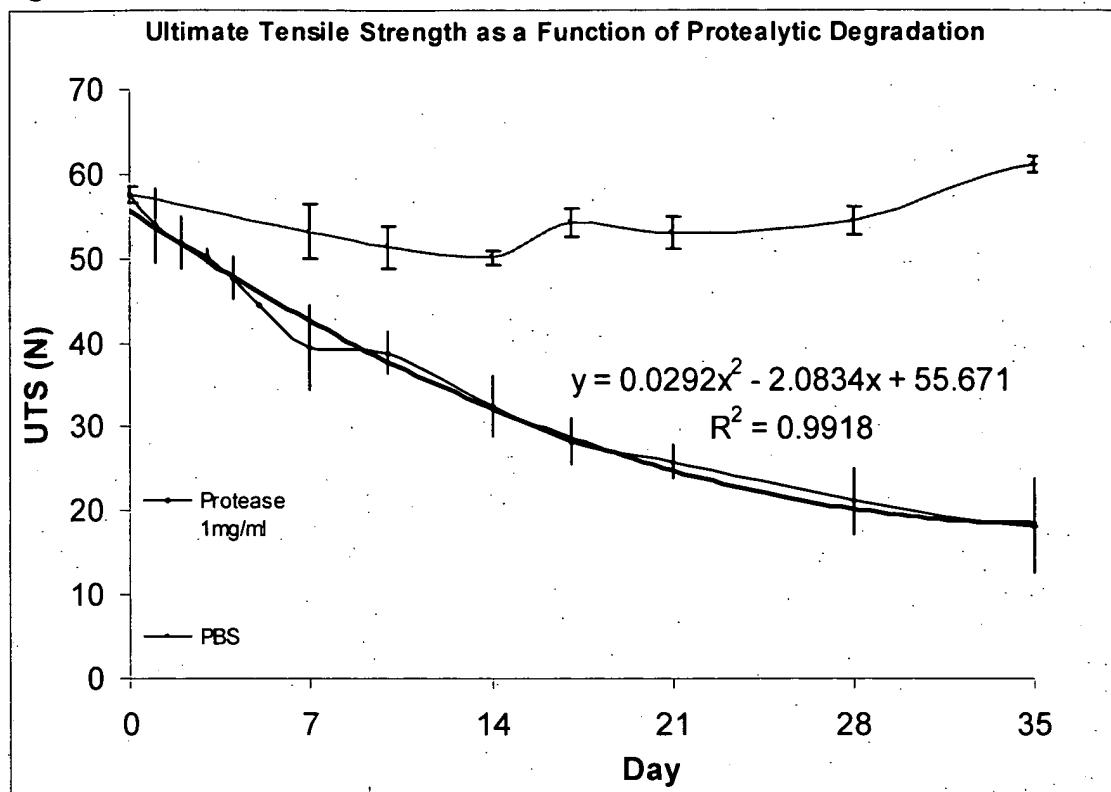


Figure 11B

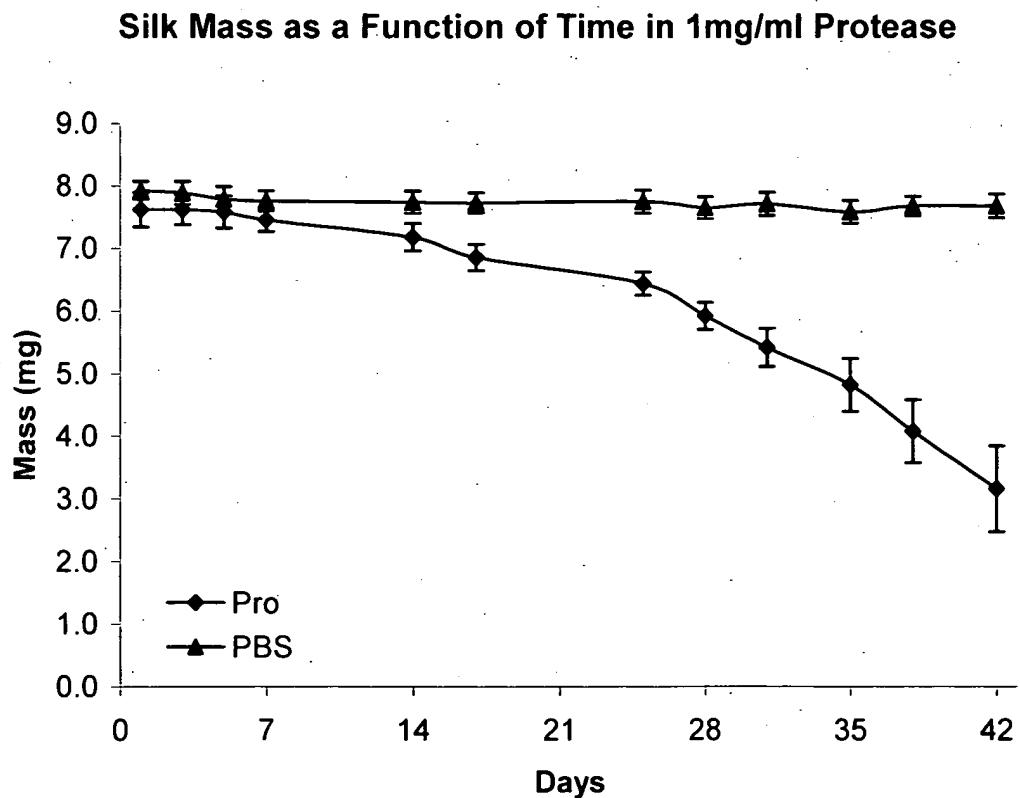
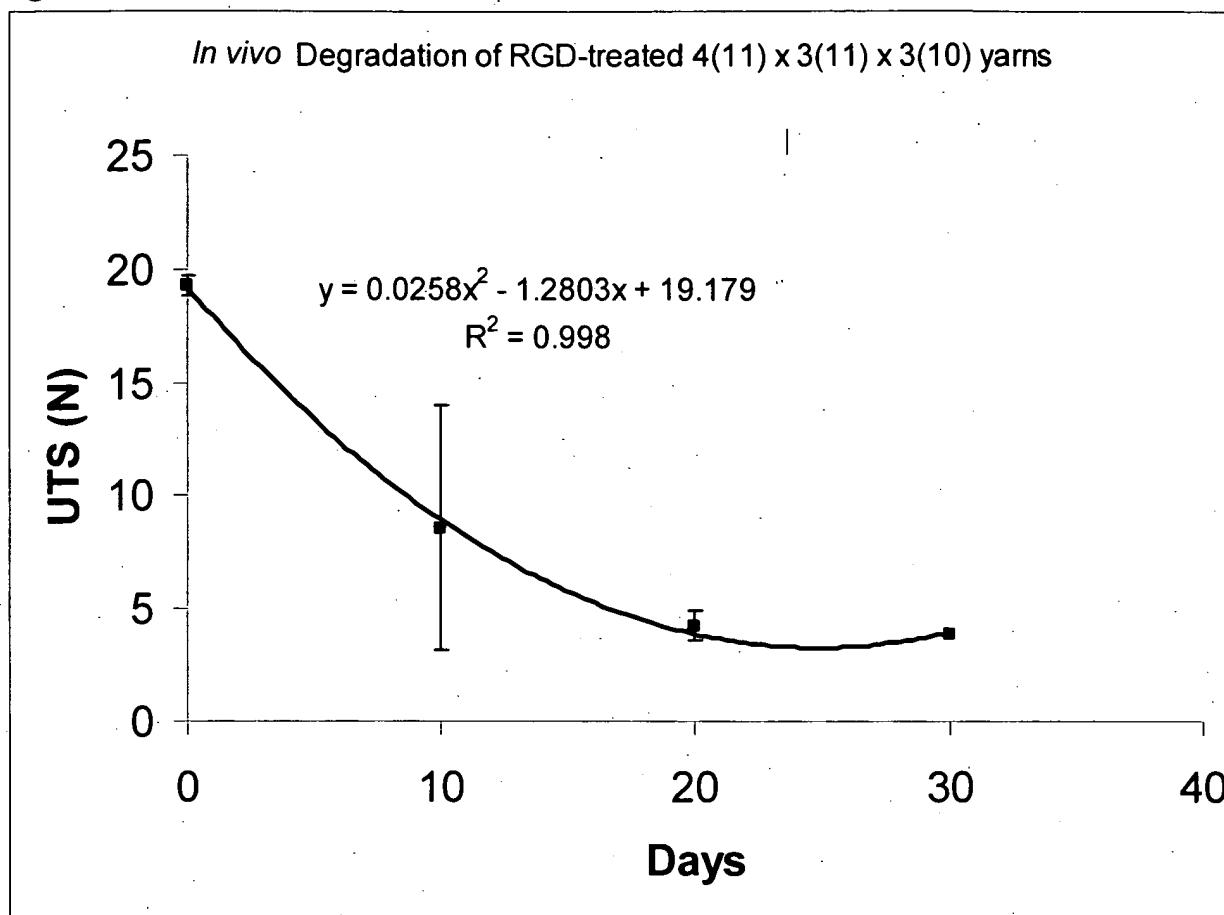
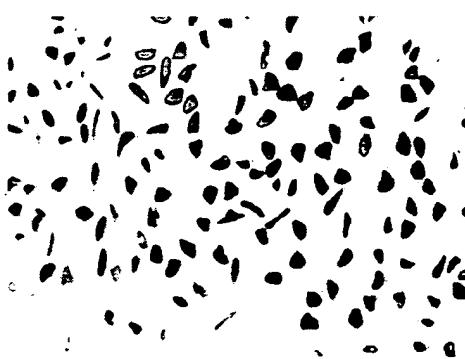
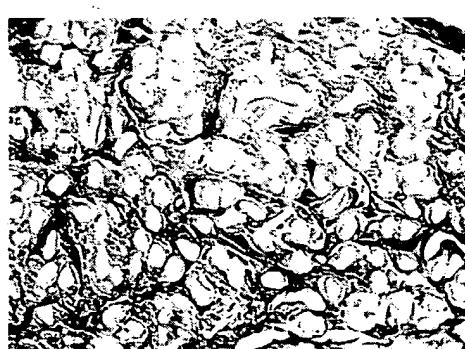
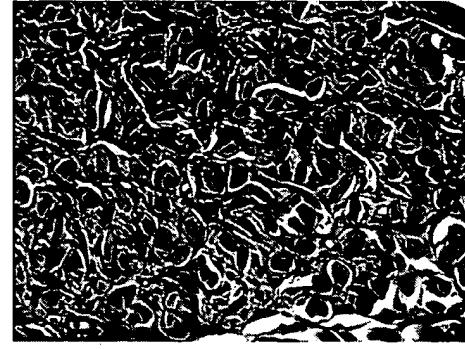
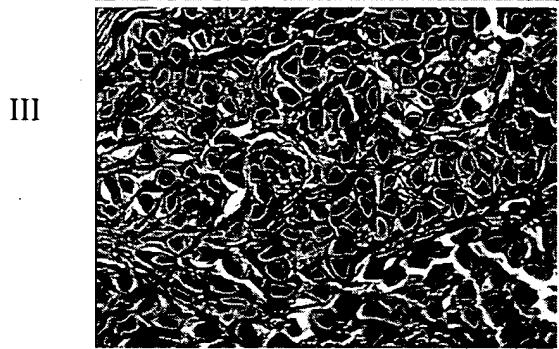
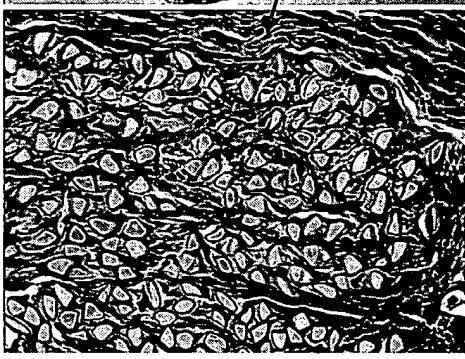
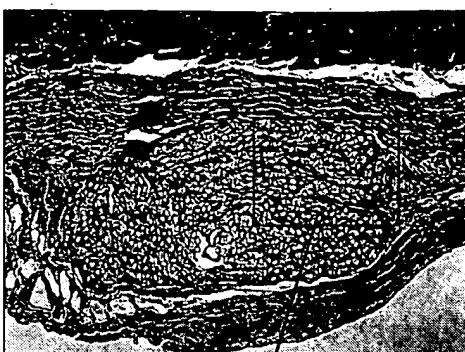


Figure 12





Non-treated

RGD-modified

Fig.
13A.

Collagen

Silk fiber

Figure 13B

Silk fiber cross-sectional area measurements after 30 days of subcutaneous implantation in a rat

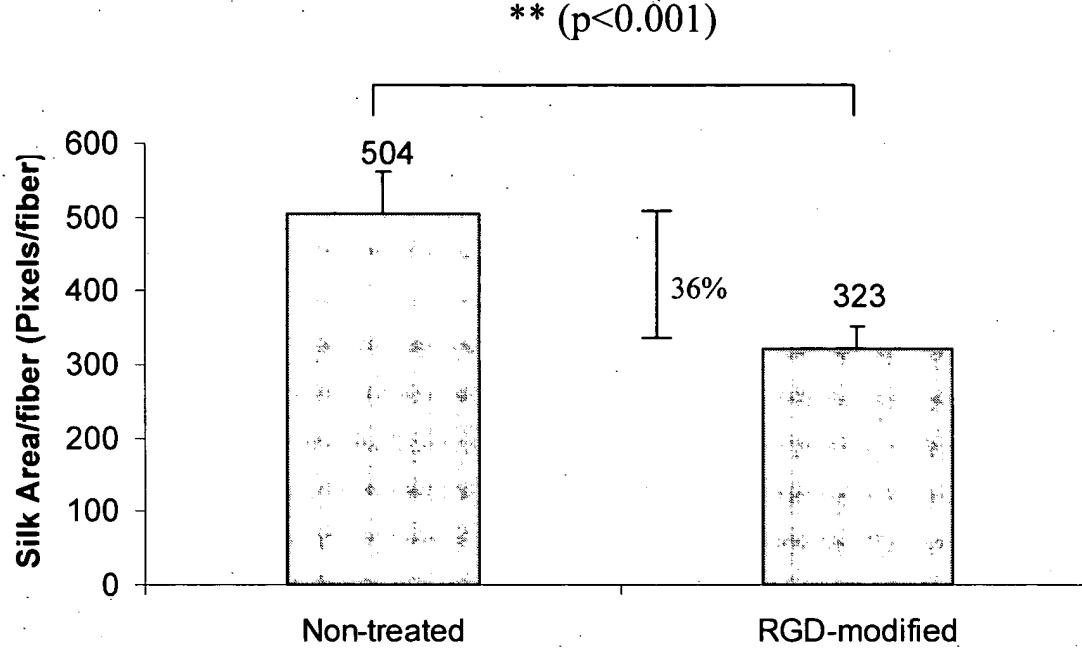


Figure 13C

Collagen deposition within 36-fiber yarn after 30 days *in vivo*.

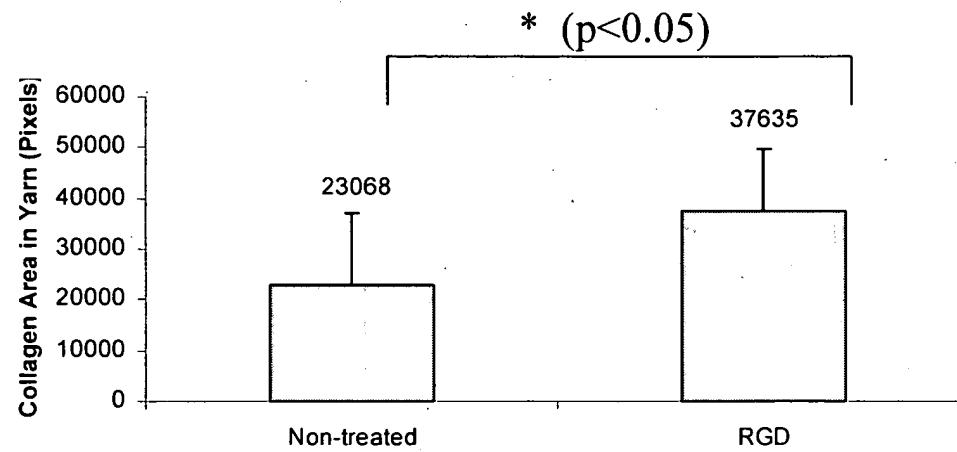
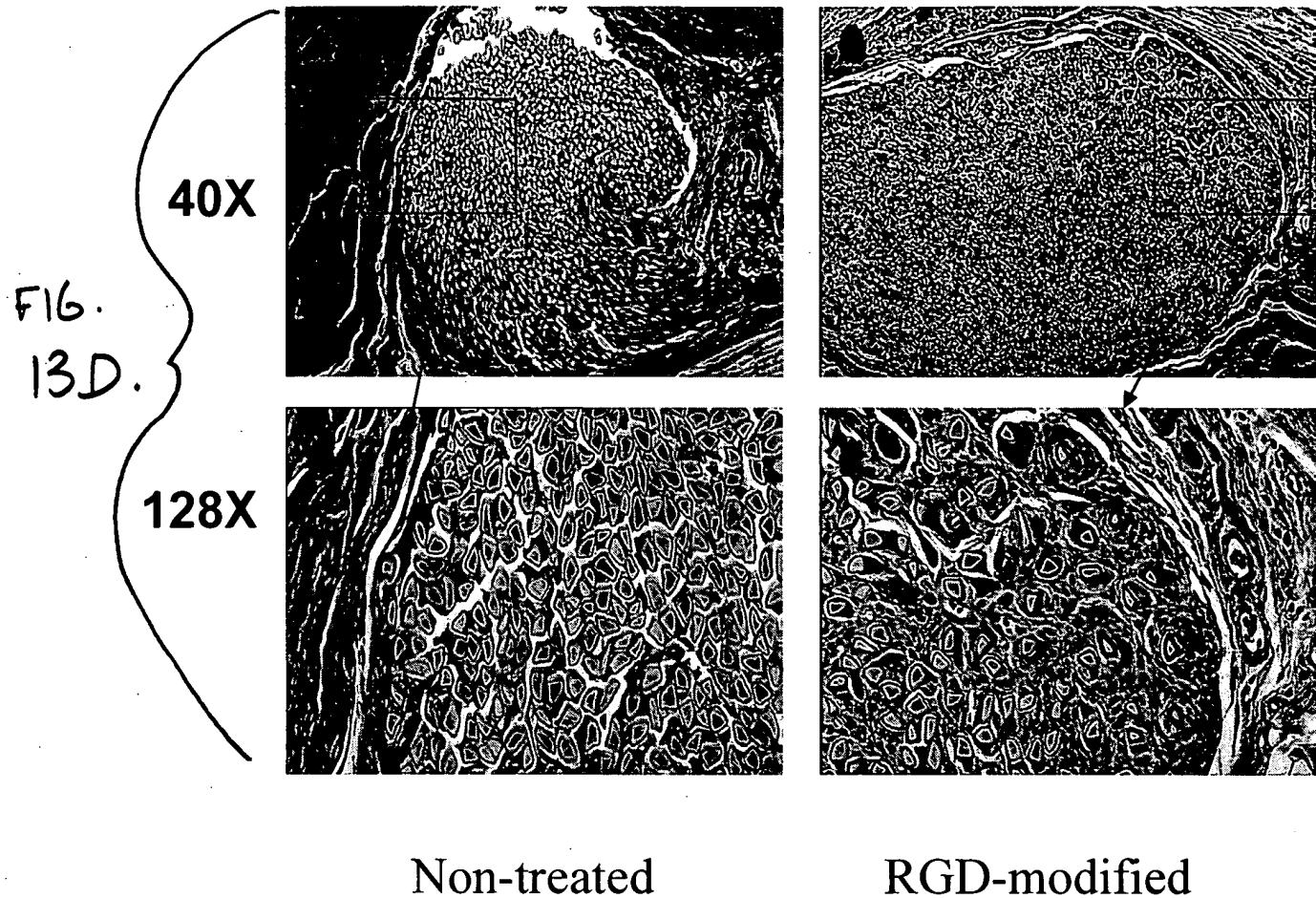


Figure 13D

Intra-muscular implantation of 4(6) x 3(3) x 6(0) for 30 days



Non-treated

RGD-modified

Figure 13E

Surface Treatment	Silk cross-sectional area (mm^2)		Change from day 10 to day 90 (%)
	10 days	90 days	
Non-treated	0.000118	0.000115	2.5
N ₂ Plasma	0.000129	0.000096	25.6
RGD	0.000129	0.000082	36.4

Figure 14

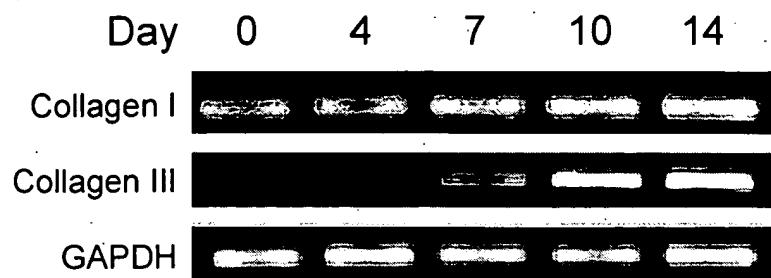
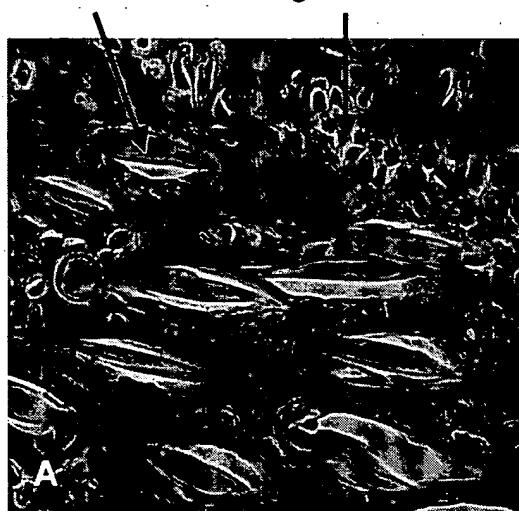


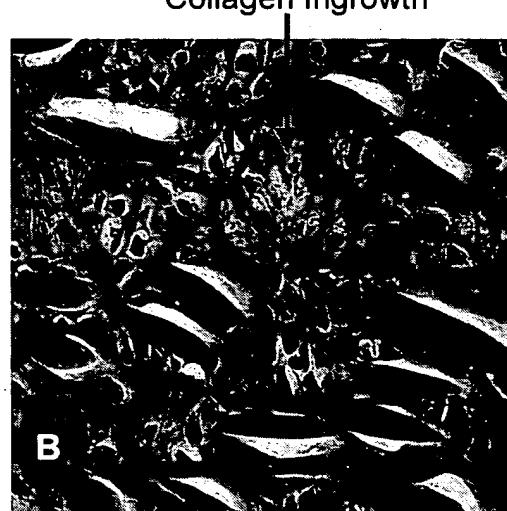
Figure 15

Matrix 1 fibroin fiber

Progenitor Host Cells



Collagen Ingrowth



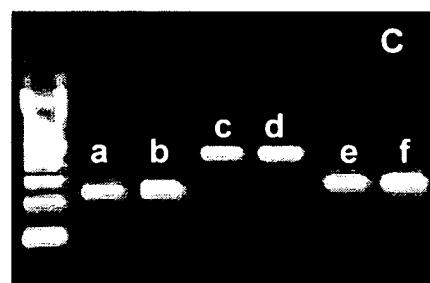
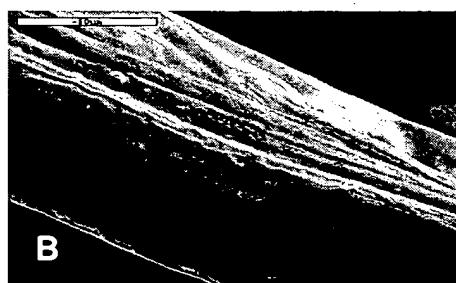
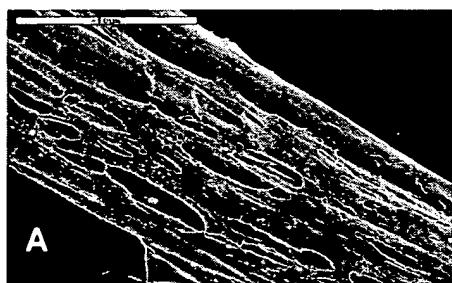
Hematoxylin and eosin staining of rabbit reconstructed MCL after 6 weeks.

15A

C 15B

Trichrome

Figure 16



16A

16B

16C

Figure 17

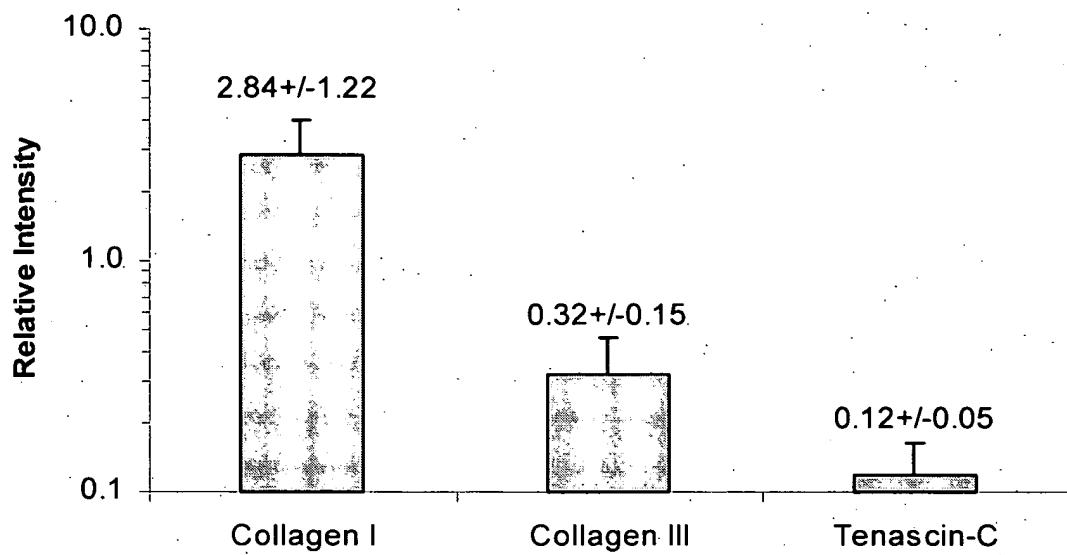


Figure 18

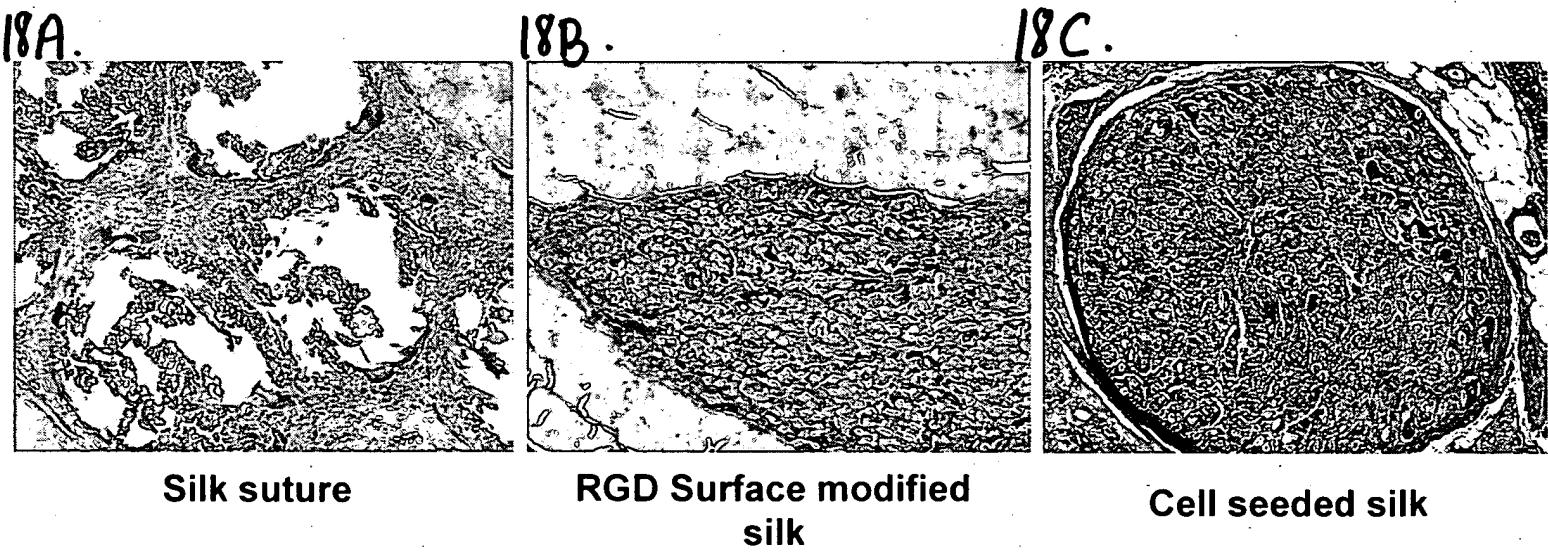


Figure 19

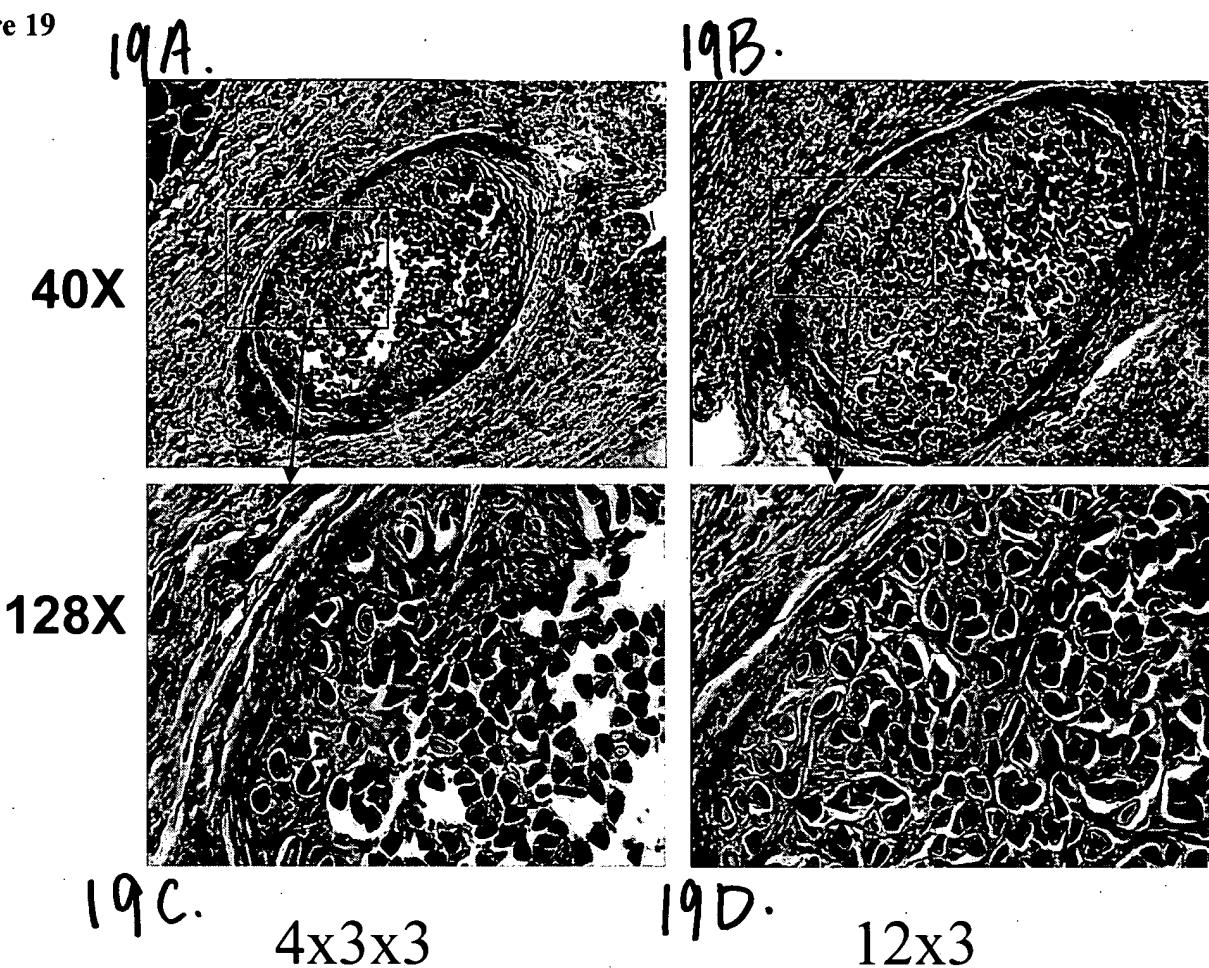
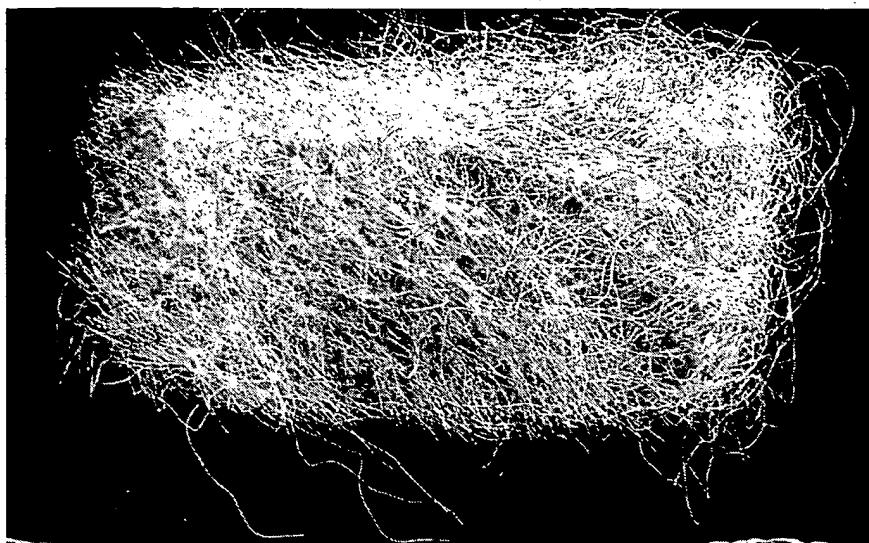
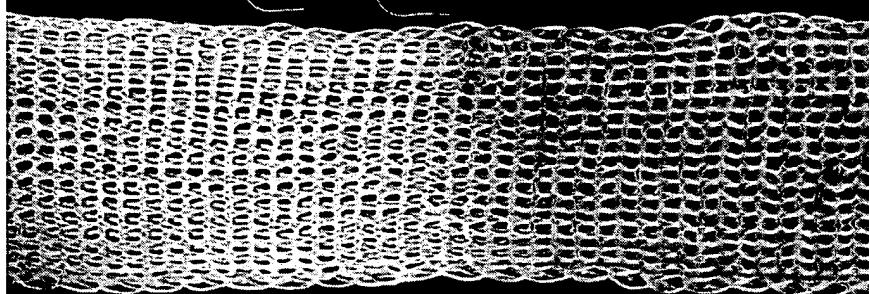


Figure 20

20A.



20B.



20C.

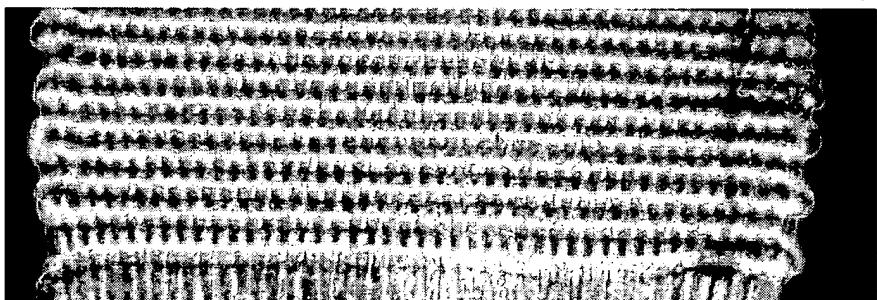


Figure 21

Notes: 1. Additional biomaterials can be added in at any step to create a composite. 2. This flow chart does not represent all possible paths. 3. Everywhere “fabric” is written, it is taken to mean non-woven, woven, or knit. 4. Everywhere “yarn-applied” is written, it is assumed to be parallel, twisted, cabled, textured, or braided.

